

## **Geographic Information System (GIS) Guidance for Section 319 Projects**

Geographical Information System (GIS) is a method for capturing, storing, checking, integrating, manipulating, analyzing, and displaying that data which are spatially referenced to the earth. The amount of environmental data managed today and the tools to process that data have expanded dramatically over the last several years. Many section 319 funded projects contain GIS supported, managed, and evaluated data.

There is a definite need to ensure basic consistency concerning the data entered and used in these systems. GIS data paid for by EPA and SC DHEC should be easily transferable to the SC DHEC GIS database, EPA, other state agencies, groups, and individuals. Therefore, all section 319 funded projects that contain a GIS component should adhere to EPA and SC DHEC required standards. The following statement will be included in such projects:

**“All geospatial data created will be consistent with Federal Geographic Data Committee (FGDC) endorsed standards. Digital coverages/products will be compatible with ArcInfo software, and preferably be delivered as ArcInfo export coverages or ArcView shapefiles, with associated HTML containing metadata.”**

The following web sites provide information for the project manager in meeting the above requirements:

1. Federal Geographic Data Committee Standards  
<http://www.fgdc.gov/standards/standards.html>
2. National Map Accuracy Standards  
<http://rockyweb.cr.usgs.gov/nmpstds/nmas.html>
3. Tools Available for Metadata Documentation: SMSS Commercial Product  
<http://www.rtseusa.com/pagetemplate/3Column-d.asp?pageid=90>
4. Tools Available for Metadata Documentation: ArcView Metadata Collector  
<http://www.csc.noaa.gov/metadata/text/download.html>

This information is supplied because GIS information is often modified based on rapidly advancing technology. The web sites will be updated as necessary to reflect these changes. Visit the described internet web sites for details.

## ***United States National Map Accuracy Standards***

With a view to the utmost economy and expedition in producing maps which fulfill not only the broad needs for standard or principal maps, but also the reasonable particular needs of individual agencies, standards of accuracy for published maps are defined as follows:

- 1. Horizontal accuracy.** For maps on publication scales larger than 1:20,000, not more than 10 Percent of the points tested shall be in error by more than 1/30 inch, measured on the publication scale; for maps on publication scales of 1:20,000 or smaller, 1/50 inch. These limits of accuracy shall apply in all cases to positions of well-defined points only. Well-defined points are those that are easily visible or recoverable on the ground, such as the following: monuments or markers, such as bench marks, property boundary monuments; intersections of roads, railroads, etc.; corners of large buildings or structures (or center points of small buildings); etc. In general what is well defined will be determined by what is plottable on the scale of the map within 1/100 inch. Thus while the intersection of two road or property lines meeting at right angles would come within a sensible interpretation, identification of the intersection of such lines meeting at an acute angle would obviously not be practicable within 1/100 inch. Similarly, features not identifiable upon the ground within close limits are not to be considered as test points within the limits quoted, even though their positions may be scaled closely upon the map. In this class would come timber lines, soil boundaries, etc.
- 2. Vertical accuracy,** as applied to contour maps on all publication scales, shall be such that not more than 10 percent of the elevations tested shall be in error more than one-half the contour interval. In checking elevations taken from the map, the apparent vertical error may be decreased by assuming a horizontal displacement within the permissible horizontal error for a map of that scale.
- 3. The accuracy of any map may be tested** by comparing the positions of points whose locations or elevations are shown upon it with corresponding positions as determined by surveys of a higher accuracy. Tests shall be made by the producing agency, which shall also determine which of its maps are to be tested, and the extent of the testing.
- 4. Published maps meeting these accuracy requirements** shall note this fact on their legends, as follows: "This map complies with National Map accuracy Standards."
- 5. Published maps whose errors exceed those aforestated** shall omit from their legends all mention of standard accuracy.
- 6. When a published map is a considerable enlargement** of a map drawing (manuscript) or of a published map, that fact shall be stated in the legend. For example, "This map is an enlargement of a 1:20,000-scale map drawing," or "This map is an enlargement of a 1:24,000-scale published map."
- 7. To facilitate ready interchange and use of basic information for map construction** among all Federal mapmaking agencies, manuscript maps and published maps, wherever economically feasible and consistent with the uses to which the map is to be put, shall conform to latitude and longitude boundaries, being 15 minutes of latitude and longitude, or 7.5 minutes, or 3-3/4 minutes in size.